2006 STATE OF HAWAII WATER QUALITY MONITORING AND ASSESSMENT REPORT:

Integrated Report To The U.S. Environmental Protection Agency
and The U.S. Congress Pursuant To Sections §303(D) and §305(B),
Clean Water Act (P.L. 97-117)

The Hawaii State Department of Health
Honolulu, Hawaii

September 14, 2007

Aloha,

The Hawaii State Department of Health (HIDOH) is pleased to announce the completion of the 2006 STATE OF HAWAII WATER QUALITY MONITORING AND ASSESSMENT REPORT: Integrated Report To The U.S. Environmental Protection Agency and The U.S. Congress Pursuant To Sections §303(d) and §305(b), Clean Water Act (P.L. 97-117)

The first three chapters of the report were prepared by different sections of HIDOH. The chapters are: Chapter I - Marine and Estuaries, Chapter II – Streams, Chapter III – Groundwater. Chapter IV summarizes the decisions into the Assessment Decision Table (for Streams and Coastal Waters) and Chapter V contains the Appendices. Also attached are the Comments received from the public during the public review period as well as the Response to Comments document

Attached to this letter are the executive summary for the report and the table of contents for each of the Marine Waters and Streams components.

The report was finalized and submitted to U.S. EPA on September 12, 2007

Mahalo nui loa,

Environmental Planning Office
Hawaii State Department of Health
919 Ala Moana Blvd., Rm 312
Honolulu, Hawaii 96814
(808) 586-4337
fax (808) 586-4370

EXECUTIVE SUMMARY

The 2006 Integrated Report is the first effort by the Hawaii State Department of Health (HIDOH) to integrate both reporting requirements of the Clean Water Act (CWA) section (§) 305(b) and §303(d). This report is comprised of five sections, each with a particular focus. Chapter I focuses on coastal waters, Chapter II focuses on inland waters and deals with inland streams and other waters, Chapter III addresses the states' groundwater, Chapter IV is the assessment tables that report impairment, and Chapter V contains the appendices.

The CWA §305(b) requires states to describe the overall status of water quality statewide and the extent to which water quality provides for the protection and propagation of a balanced population of shellfish, fish, and wildlife and allows recreational activities in and on the water. Additionally, the CWA §106(e) requires State reporting on the status of their groundwater resources to Congress every two years in the biennial 305(b) report. The CWA §303(d) requires States to submit a list of Water Quality-Limited Segments, waters that do not meet state water quality standards, plus a priority ranking of listed waters, based on the severity of pollution and the uses of the waters.

The §303(d) list leads to action. Total Maximum Daily Loads (TMDLs) are pollution budgets to bring §303(d)-listed pollutant/water body combinations into compliance with water quality standards. Computation of TMDLs for all 303(d) listed pollutant water body combinations, prepared in accordance with the priority rankings, must follow EPA approval of each state's list.

Hawaii's 2004 §303(d) List plus data collected from State surface water bodies over the past six years constitute the information reviewed for this 2006 Integrated Report. Decisions to list, de-list or not list a water body, for which data exist and have been reviewed, must be documented (40 CFR §130.7). The review of water quality requires a minimum amount data over a period of time, so extreme events of very short duration do not necessarily cause a water body to be listed. The periodic listing process allows Hawaii Department of Health (HIDOH) to list, de-list, or more clearly articulate or delineate the parameters for which the water bodies are listed.

HIDOH's 2006 303(d) List contains a total of 213 marine areas. The breakdown for the individual islands (number of listed waters per island/total number of listed waters) are: Kauai 25 (12% of total), Oahu 74 (35% of total), Molokai 3 (1% of total), Lanai 6 (3% of total), Maui 72 (34% of total), and Hawaii 33 (15% of total). Of the 213 marine areas, 43 new water bodies were added, 2 were de-listed (Lanikai Beach, and Waimanalo Beach County Park [North], both for enterococci), and 6 previously listed water bodies were listed for new pollutants.

Within the 93 listed inland freshwater perennial streams, there were a total of 296 individual pollutant/water body combinations. The most common listing was turbidity with 101 instances of exceedance. The next most common listings were Nitrite/Nitrates, Total Nitrogen, and Total Phosphorus with 75, 67, and 41 instances of exceedance, respectively. There were 5 instances of Dieldrin listings, 2 Chlordane, 2 Total Suspended Solids, and 1 listing for Metals/Lead.

Of the 213 listed marine waters, 62 were due to high *Enterococcus* indicator bacteria test results. In general the department does not consider these waters to represent a threat to human

health, despite the results, because in tropical waters, *Enterococcus* may result from animal waste or soils, instead of human sewage which the indicator bacteria was intended to signal. Recent studies presented at the recent 2006 BEACH Conference suggest that *Enterococcus* reproduces in biofilm and is found in drainage pipes, concrete channels, river rocks and in beach sand. For these reasons, Hawaii uses a secondary indicator, *Clostridium perfringens* to determine if human fecal contamination is involved.

Hawaii's current bacterial water quality standard is 7 colony forming units (CFU)/100mL, as compared to the national standard of 35 cfu/100mL. During rain events, *Enterococcus* levels in the marine waters increase due to storm water runoff from streams and storm drains. For these reasons, HIDOH intends to raise the Hawaii standard to 35 cfu/100mL to match the national standard. Nonetheless, when *Enterococcus* levels rise during non-storm related events, a sanitary survey is conducted to determine the cause of the rise.

Turbidity was the most common pollutant to marine water listings with 154 occurrences. The HIDOH believes these are due to polluted runoff, and is focusing its polluted runoff control program on selected watersheds to make measurable improvements.

The 43 new marine areas were listed for one or a combination of pollutants that include *Enterococcus*, total nitrogen, nitrate + nitrite, total phosphorus, turbidity, chlorophyll a, and ammonium nitrogen. Similar to the existing listings, turbidity was the most common pollutant to trigger a marine water listing, with 24 occurrences.

Marine decision units (boundaries for water areas for analyses) were changed from the 2004 303(d) List to the 2006 Report, making direct comparison impractical. The boundaries will continue to be refined in the future. In general, 10 acceptable quality samples were required to change the status of a decision unit (water area) from its 2004 evaluation.

The groundwater report presents aquifer specific assessments for groundwater resources in the State of Hawaii for 2004 and 2005. The report shows that contamination continues to occur in Hawaii. In most cases, once a groundwater source has been contaminated, it remains contaminated for many years. Groundwater can become contaminated through natural processes, but anthropogenic, or human induced contamination poses more serious problems. Contaminants may come from herbicides, pesticides, industrial solvents, and other sources, which are applied, spilled, or leaked into the ground. Groundwater contamination is a significant concern because nearly all of Hawaii's drinking water comes from groundwater sources.

The overall quality of Hawaii's groundwater is generally considered excellent. The chemical contaminant concentrations that have been detected in public groundwater/drinking water sources are generally below state and federal drinking water standards. The percentage of Hawaii's population served by drinking water in compliance with State and Federal microbial and chemical standards called maximum contaminant levels (MCLs) was 99.1% in 2005. See attached Hawaii State Department of Health Indicators of Environmental Quality for drinking water.

CHAPTER I – MARINE WATERS
TABLE OF CONTENTS

COASTAL WATERS

PART A. INTRODUCTION 6

PART B. SCOPE OF WATERS IN THE INTEGRATED REPORT 8

PART C. SURFACE WATER MONITORING AND ASSESSMENT 8

C.1. Monitoring Program 8
- Monitoring Strategy Overview 8
- Networks and Programs 9
- Microbiological Sampling 9
- Chemical Sampling 9
- Laboratory Analytical Support 10
- Quality Assurance/Quality Control 10
- Data Storage, Management and Sharing 10

C.2. Assessment Methodology 11
- Data Sources 11
- Assessment Methodology 12
- Assessment Utilizing Hawaii Water Quality Standards 12
- Changes to Assessment Methodology 17
- Assessment Codes (Geocodes) 24

C.3. Assessment Results ..... CHAPTER IV

CHAPTER 2 – STREAMS
TABLE OF CONTENTS

PART A. INTRODUCTION 6

PART B. BACKGROUND INFORMATION 7

B.1. Scope of Waters in the Integrated Report 7

PART C. SURFACE WATER MONITORING AND ASSESSMENT 8

C.1. Assessment Methodology 8

C.2 Assessment Results 20
C.2.1 Review of Data 20
C.2.2 Hawaii's 2006 303(d) List 27
C.2.3 Explanation of Major Changes and Delisting 31
C.2.4 Future Directions 39

C.3 Wetlands Program 39

C.4 Trends Analysis for Surface Waters 39

C.5 Public Health Issues 39

PART D. GROUNDWATER MONITORING AND ASSESSMENT 39

PART E. PUBLIC PARTICIPATION 39

ASSESSMENT RESULTS ..... CHAPTER IV